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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,063	07/17/2006	Manfred Heim	HEIM3001/JJC/PMB	7469
23364 7590 08/25/2010 BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314-1176				
EXAMINER				
JOLLEY, KIRSTEN				
ART UNIT		PAPER NUMBER		
1715				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/568,063

**Applicant(s)**

HEIM ET AL.

**Examiner**

Kirsten C. Jolley

**Art Unit**

1715

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-13, 15-18, 20-34, 39-51, 54-59 and 64 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 14, 19, 35-38, 52, 53 and 60-63 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 5/27/10
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments/Amendments*

1. The 35 USC 101 rejection set forth in the prior Office action has been withdrawn.
2. Applicant's arguments filed May 27, 2010 have been fully considered but they are not persuasive.

With respect to the 35 USC 103(a) rejections over DE '035, or Heim, Applicant argues that the quoted passage of Heim (col. 5, lines 35-37) does not provide any teaching that the spacer/dielectric layer D of the Heim publication can be printed on. Applicant states that Heim clearly discloses that each of the layers A, D, R, M are preferably produced by means of vacuum vapor deposition, and that the full passage states "Apart from vapor deposition methods layers can, if possible, also be printed on. Here the magnetic layer can be placed in the layer structure with the use of suitable printing inks." Applicant argues that thus, Heim only discloses that it is possible to print the magnetic layer, but does not disclose or suggest that it is possible to print the dielectric/spacer layer, as is required by pending claims 1 and 31. The Examiner disagrees. DE '035 (Heim) states that each of the layers are *preferably* produced by means of vacuum vapor deposition. The use of "preferably" indicates that vacuum vapor deposition is preferred but other methods are possible. Also, Heim states "layers can, if possible, also be printed on," and it is noted that the plural term **layers** refers to all of the layers introduced above in the same paragraph -- layers A, D, R, M. Finally, while the last sentence of the paragraph mentions that the magnetic layer can be printed using a printing ink, this is merely exemplary of one of the layers, and there is nothing to indicate that the use of printing inks is limited to only the magnetic

layer. Finally, in response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant also argues that Heim fails to disclose or suggest the use of dispersion particles with monomodal or oligomodal size distribution in the printed spacer layer. Applicant states that the assertion in the Office action that the use of particles having the same size or close thereto produces coatings having higher uniformity has no evidentiary support, and is wrong with respect to particles of oligomodal size distribution. Applicant states that just because a coating includes particles having the same size or close thereto does not imply that a coating will have higher uniformity. Applicant also argues that it is not necessary to utilize particles having the same size or close thereto in order to achieve a uniform coating. The Examiner notes that it is not necessary to use particles of the same size to achieve a uniform coating, and further notes that degrees of uniformity is relative and art-specific. However, the Examiner maintains that it is generally known in the coating art that use of monomodal size distribution aids in achieving a constant viscosity and uniform delivery of the coating material, as well as repeatability in coating results.

With respect to the Bonkowski publication, Applicant argues that there is no hint or suggestion that the dielectric layer 20 can be formed by a printed layer. It is noted that the

Bonkowski publication is not cited for its teaching of printing, but rather for the materials disclosed with respect to claim 5, and use of a second spacer layer and second absorber layer, and manufacture of color shifting flakes, etc.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 9-10, 13, 15, 20-34, and 39-41, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 10202035 A1.

US 7,085,058 B2 to Heim is used as a working English translation of DE 10203035 A1, and the cited column and line numbers are from patent number 7,085,058.

DE '035 discloses a method of manufacturing a security element for security papers or documents or the like, and the resulting security element product, which contains a thin-layer element with color shift effect that has a reflection layer, an absorber layer, and a spacer/dielectric layer therebetween. DE '035 teaches that the layers are *preferably* produced by means of a vacuum vapor deposition method, however the "layers" (which includes the spacer/dielectric layer D introduced above in the paragraph) can also be printed on (see col. 5, lines 35-37 of Heim's US patent). DE '035 does not provide details of the composition used to perform printing of the dielectric layer D, however it is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have used a dispersion of the

material taught for the dielectric layer D as the printing ink since a printing ink is a liquid composition and the materials taught by DE '035 (col. 4, lines 47-55) are solid at room temperature. Further, it would have been obvious for one having ordinary skill in the art to have used dispersion particles with monomodal (or oligomodal) size distribution because it is known in the coating art that use of particles of the same size, or close thereto, produces coatings having higher uniformity and more predictable/repeatable coating results since there will not be areas with greater thickness and less density due to the presence of large particles and areas with smaller thickness and more density due to the presence of small particles, as well as uniform viscosity and delivery of the coating material.

As to claim 32, it would have been obvious to have used any conventional printing method, including those claimed, to apply a dielectric layer dispersion with the expectation of successful results since there is not a teaching to the contrary.

As to claims 2-4 and 33-34, it would have been obvious to have used particles having a spherical shape since those are most common, and to have formed a monolayer of particles to ensure that the thickness uniformity of the dielectric layer remains uniform. Further, it would have been obvious for one having ordinary skill in the art to have used particles having a size in the claimed range since DE '035 teaches that the thickness of the dielectric layer is usually in the range of 100 to 1000 nm (col. 4, lines 55-56). As to claim 9, it is noted that in the case where particles of more than a single size are used, the smaller particles would necessarily settle in the spaces between the larger dispersion particles.

As to claim 10, DE '035 teaches use of reflection layer materials that are opaque (col. 4, lines 63-64).

As to claims 13 and 15, DE '035 teaches that a plurality of dielectric layers D may be applied (col. 4, lines 58-62).

As to claims 20-22, 24, and 39-40, DE '035 teaches applying the absorber layer, spacer layer, and reflection layer in the recited order, or vice versa (see Figures 6 and 7). Further, DE '035 teaches there may be an aeral diffraction structure provided on the carrier by embossing in col. 5, lines 56-67.

As to claims 23 and 41, DE '035 teaches that the absorber layer is vapor deposited in col. 5, lines 21-22, and the absorber layer would necessarily have the claimed transmission since similar materials are taught for the absorber layer in DE '035 as in the instant specification.

5. Claims 5, 11-12, 16-18, 42-44, and 46-50, 54-59, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 10202035 A1 as applied to claims 1 and 31 above, and further in view of WO 01/03945 A1.

Throughout its teachings, DE '035 cites WO 01/03945 for many of the features of its invention. WO '945 is similarly directed to the manufacture of a color shift security element.

With respect to claim 5, DE '035 teaches that the dielectric layer D may be one of the dielectric materials taught in WO '945. WO '945 teaches exemplary materials for a dielectric layer on pages 6-7, including the broad teaching of use of "organic monomers and polymers" (page 7, line 4), some of which would necessarily fall within the melting point range of claim 5.

As to claims 16-18 and 42-44, WO '945 teaches that the security element may be formed using a second spacer layer and second absorber layer so that a color shift is recognizable on two sides (col. 9, lines 20-29). It would have been obvious for one having ordinary skill in the art to

have used a similar structure in the method of DE '035 with the expectation of successful results since the teachings of WO '945 are incorporated into the reference of DE '035. It would have further been obvious to have applied the second spacer layer by printing, as discussed above, because use of printing is generally discussed as a means to apply the dielectric/spacer layer in DE '035.

As to claims 11-12, WO '945 teaches use of semitransparent metal layer as the reflection layer, or a transparent reflection layer (col. 7, lines 18-30). It would have been obvious to have incorporated this teaching into the reflection layer of DE '035's color shift element with the expectation of similar, successful results.

With respect to independent claims 46, 55, and 56, WO '945 discloses an alternative embodiment of its invention where the color shifting optical coating of its first embodiment, which is similar to the embodiment disclosed in DE '035, may be used to form color shifting flakes that may be incorporated into a printing ink (see page 9, line 20 to page 10, line 29 of WO '945). WO '945 teaches forming pigments having the layer structure discussed above by applying the layers, then removing the element from the substrate, grinding the element into particles having a predetermined particle size, and mixing the particles (now color shifting pigments) with a binding agent to form a security ink. It would have been obvious to one having ordinary skill in the art to have similarly prepared a security ink having color shifting pigments formed from flakes of a security element formed by the process of DE '035 discussed above (including applying the spacer/dielectric layer by printing) with the expectation of similar, successful results.



The limitations of claims 47-50, 54, 57-59, and 64 are rejected for the same reasons as discussed above with respect to the dependent claims limitations of independent claims 1 and 31.

6. Claims 1-4, 6, 9-10, 13, 15, 20-34, and 39-41, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/016073.

US 2005/0001038 to Walter et al. is used as a working English translation of WO 03/016073, and the cited column and line numbers are from US 2005/0001038.

WO '073 discloses a method of manufacturing a security element for security papers or documents or the like, and the resulting security element product, which contains a thin-layer element with color shift effect that has a reflection layer 2, an absorber layer 4, and a spacer/dielectric layer 3 therebetween (see abstract of Walter et al.). WO '073 teaches that the spacer layer is preferably formed in text or pattern (paragraph [0016]) and such may be performed by a wet chemical route (paragraph [0019]) as opposed to vapor deposition. WO '073 does not provide details of the composition used to perform printing of the spacer layer 3, however it is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have used a dispersion of the material taught for the spacer layer 3 since "wet chemical" refers to a liquid composition. Further, it would have been obvious for one having ordinary skill in the art to have used dispersion particles with monomodal (or oligomodal) size distribution because it is known in the coating art that use of particles of the same size, or close thereto, produces coatings having higher uniformity and more predictable/repeatable coating results since there will not be areas with greater thickness and less density due to the presence of

large particles and areas with smaller thickness and more density due to the presence of small particles, as well as uniform viscosity and delivery of the coating material.

As to claim 32, it would have been obvious to have used any conventional printing method, including those claimed, to apply a spacer layer dispersion with the expectation of successful results since WO '073 teaches that the spacer layer is formed non-uniformly in the form of text or pattern.

As to claims 2-4 and 33-34, it would have been obvious to have used particles having a spherical shape since those are most common, and to have formed a monolayer of particles to ensure that the thickness uniformity of the dielectric layer remains uniform. Further, it would have been obvious for one having ordinary skill in the art to have used particles having a size in the claimed range since WO '073 teaches that the thickness of the dielectric layer is usually in the range of 20-2000 nm (paragraph [0016]). As to claim 9, it is noted that in the case where particles of more than a single size are used, the smaller particles would necessarily settle in the spaces between the larger dispersion particles.

As to claims 5 and 6, WO '073 teaches use of polystyrene as the spacer layer in paragraph [0010] of Walter et al.

As to claim 10, the reflective mirror layer, such as gold which is taught in paragraph [0067], would necessarily be opaque.

As to claims 13 and 15, it would have been obvious to have applied a plurality of spacer layers with the expectation of similar results as a single thicker layer, in the absence of a showing of criticality.

As to claims 20-22, 24, and 39-40, WO '073 teaches applying the absorber layer, spacer layer, and reflection layer in the recited order, or vice versa (see Figures 3 and 4). Further, WO '073 teaches there may be an acrial diffraction structure provided on the carrier to provide holographic structure in paragraph [0011] of Walter et al.

As to claims 23 and 41, WO '073 teaches that the absorber layer is vapor deposited, and the absorber layer would necessarily have the claimed transmission since similar materials are taught for the absorber layer in WO '073 as in the instant specification.

7. Claims 11-12, 16-18, 42-44, and 46-51, 54-59, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 03/016073 as applied to claims 1 and 31 above, and further in view of WO 01/03945 A1.

WO '945 is similarly directed to the manufacture of a color shift security element.

As to claims 16-18 and 42-44, WO '945 teaches that a security element may be formed using a second spacer layer and second absorber layer so that a color shift is recognizable on two sides (col. 9, lines 20-29). It would have been obvious for one having ordinary skill in the art to have used a similar structure in the method of WO '073 with the expectation of successful results since the references are similarly related to the manufacture of color shift security elements.

As to claims 11-12, WO '945 teaches use of semitransparent metal layer as the reflection layer, or a transparent reflection layer (col. 7, lines 18-30). It would have been obvious to have incorporated this teaching into the reflection layer of WO '073's color shift element with the expectation of similar, successful results.

With respect to independent claims 46, 55, and 56, WO '945 discloses an alternative embodiment of its invention where the color shifting optical coating of its first embodiment, which is similar to the embodiment disclosed in WO '073, may be used to form color shifting flakes that may be incorporated into a printing ink (see page 9, line 20 to page 10, line 29 of WO '945). WO '945 teaches forming pigments having the layer structure discussed above by applying the layers, then removing the element from the substrate, grinding the element into particles having a predetermined particle size, and mixing the particles (now color shifting pigments) with a binding agent to form a security ink. It would have been obvious to one having ordinary skill in the art to have similarly prepared a security ink having color shifting pigments formed from flakes of a security element formed by the process of WO '073 discussed above (including applying the spacer/dielectric layer by printing) with the expectation of similar and successful results.

The limitations of claims 47-51, 54, 57-59, and 64 are rejected for the same reasons as discussed above with respect to the dependent claims limitations of independent claims 1 and 31.

***Allowable Subject Matter***

8. Claims 7-8, 14, 19, 35-38, 52-53, and 60-63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. These claim limitations are not taught or fairly suggested by the prior art of DE '035 or WO '073.

***Conclusion***

9. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on May 27, 2010 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kirsten C Jolley/  
Primary Examiner, Art Unit 1715

kcj